

(No Model.)

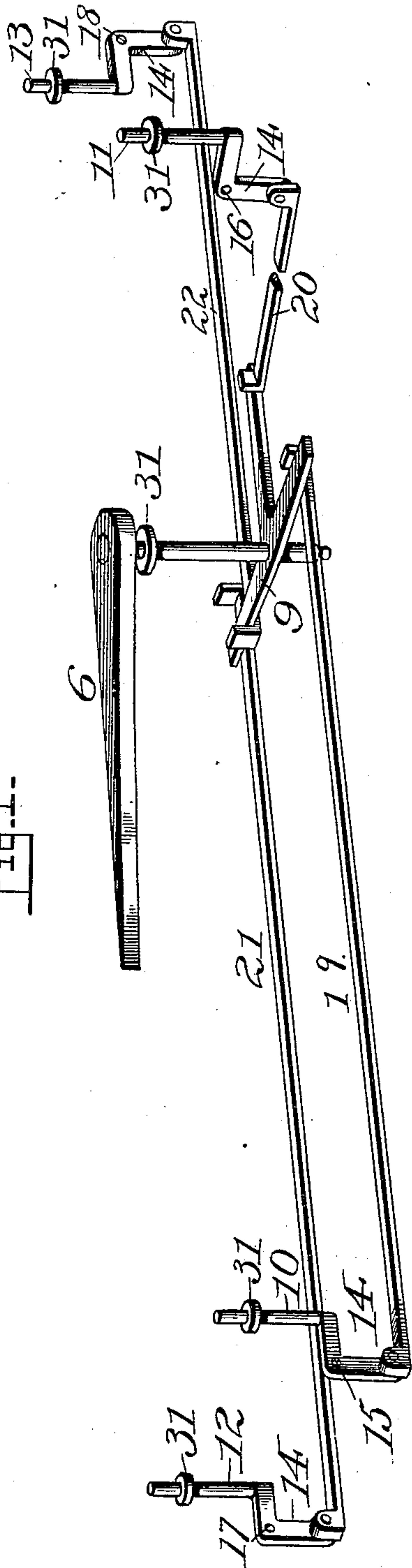
2 Sheets—Sheet 1.

G. S. MAXWELL & J. CLARK, Jr.
AUTOMATIC RAILWAY SWITCH.

No. 472,063.

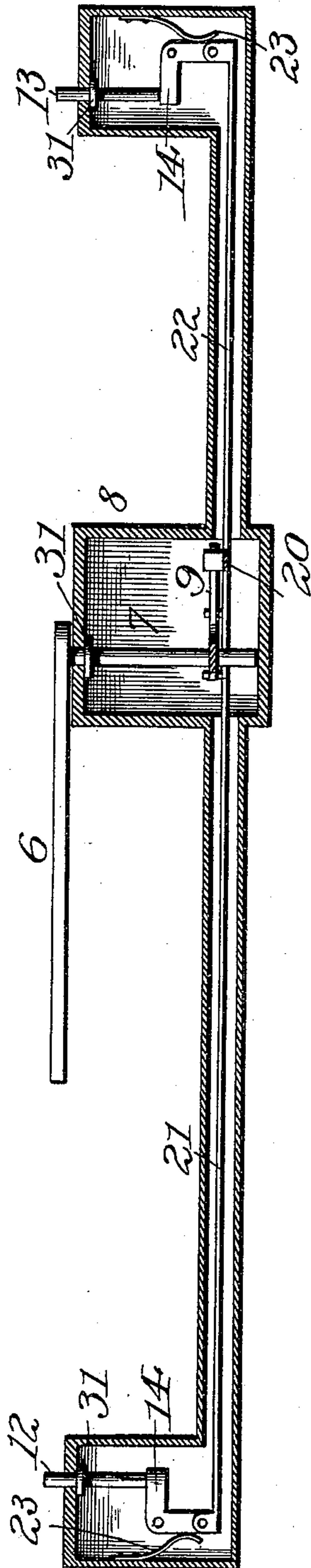
Patented Apr. 5, 1892.

Fig. I.



WITNESSES
Wm. H. Hildyard.
Mr. C. Hildyard.

Fig. II.



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George S. Maxwell.
James Clark Jr.
by *H. E. Stevens* ATT'Y.

(No Model.)

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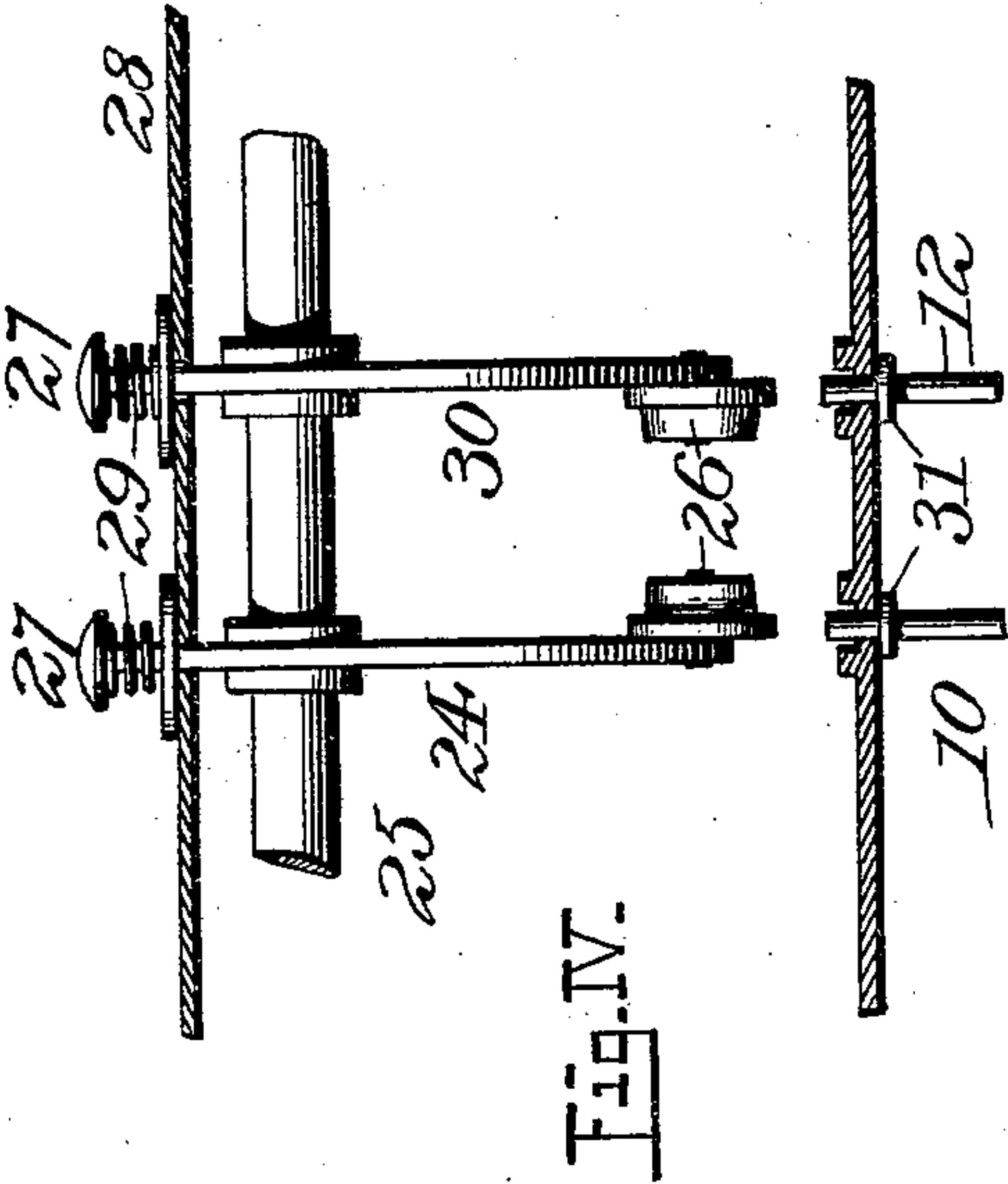


Fig. IV.

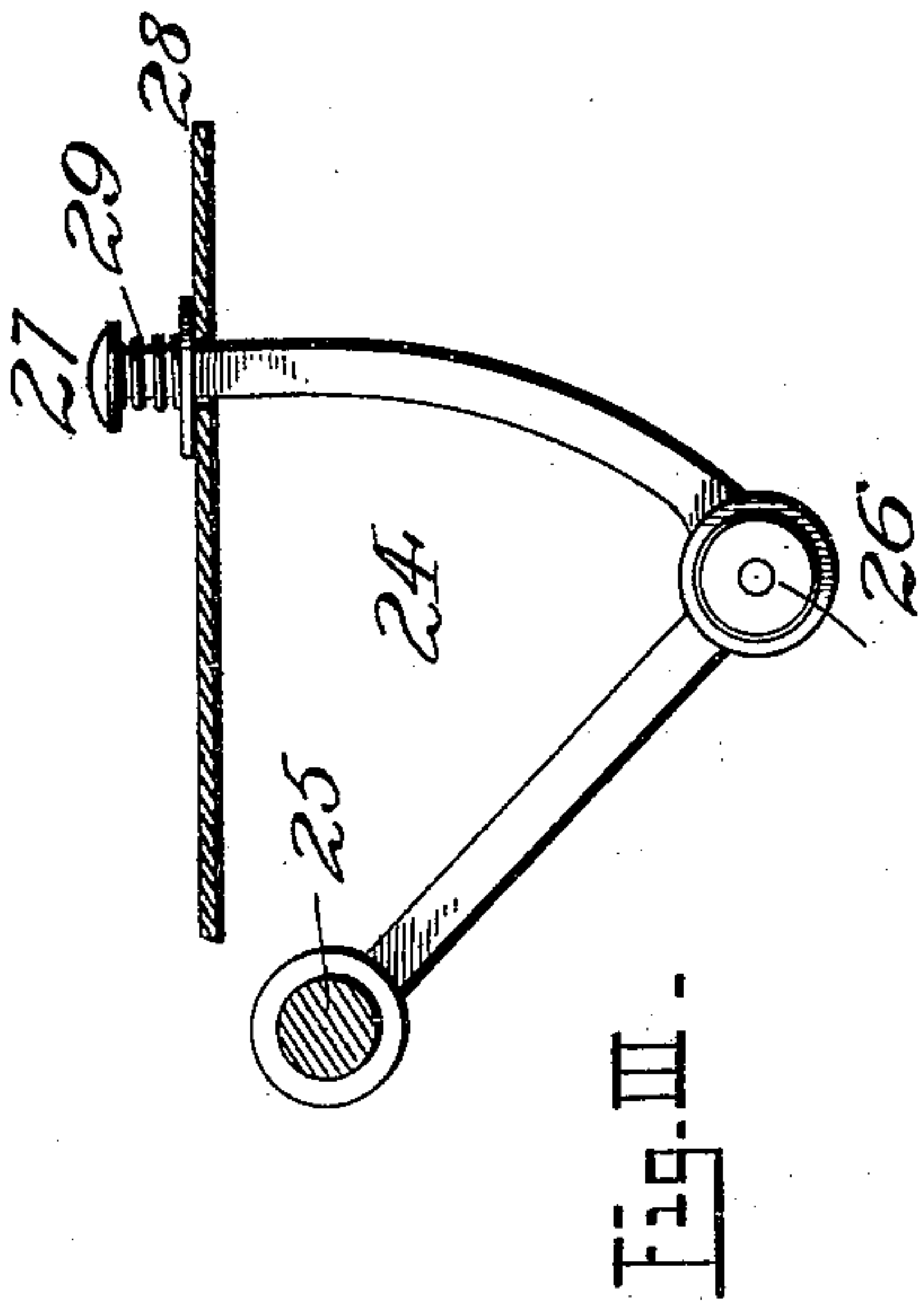


Fig. III.

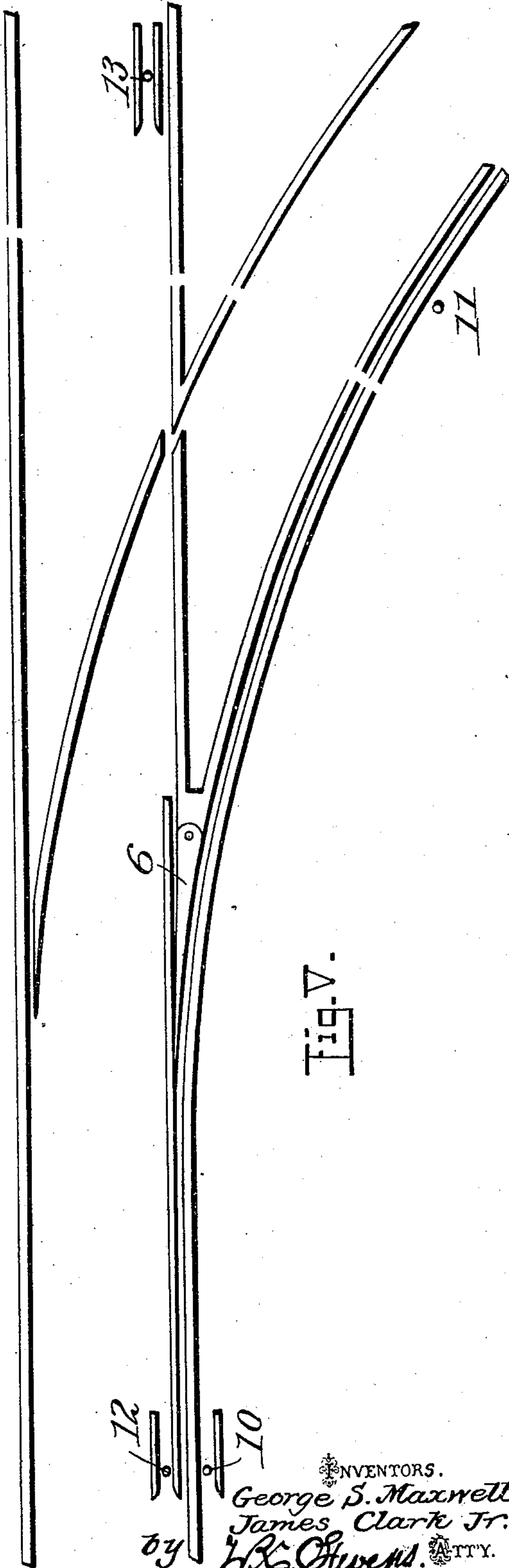


Fig. V.

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INVENTORS.
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by *H. C. Owens.* ATT'Y.

UNITED STATES PATENT OFFICE.

GEORGE SEYMOUR MAXWELL AND JAMES CLARK, JR., OF LOUISVILLE,
KENTUCKY.

AUTOMATIC RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 472,063, dated April 5, 1892.

Application filed August 13, 1891. Serial No. 402,546. (No model.)

To all whom it may concern:

Be it known that we, GEORGE SEYMOUR MAXWELL and JAMES CLARK, Jr., citizens of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Automatic Railway-Switches; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of devices which serve to shift a portion of a railway-track from one position to another for the purpose of guiding an engine and cars from the main track to a side track, or the reverse; and its object is to adapt a switch and appliances upon an engine to coact therewith, whereby the engineer may open a switch to a siding to guide his engine thereon, or he may close such a switch which he sees to be open and pass by upon the main line, and under either of the said conditions he may either close or leave open the said switch after his train has passed the guiding-tongue thereof.

To this end our invention consists in the construction and combination of parts forming a switch, certain portions of which are attached to the road-bed and other portions to the engine, as hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure I is a perspective view of that portion of our switch which is to be located upon the road-bed. Fig. II is a longitudinal vertical section of the inclosing box, showing in side elevation most of the parts seen in Fig. I. Fig. III is a side elevation of portions of the switch that are carried upon the engine, a part of the latter being shown in vertical section. Fig. IV is a transverse vertical section of a portion of an engine and road-bed with the coacting parts seen at one end as adapted for double service; and Fig. V is a view looking upon a portion of road-bed, showing parts of our switch which are visible above ground.

6 represents the tongue of the switch fixed upon a vertical shaft 7, which is journaled to oscillate in bearings in the casing 8.

9 is a T-shaped lever fixed midway upon the shaft 7 to turn the same.

10, 11, 12, and 13 are plungers mounted upon elbow-levers 14, which are pivoted, respectively, at 15, 16, 17, and 18 to the casing 8. Rods 19, 20, 21, and 22 respectively connect the vertical arms of the elbow-levers 14 belonging to the plungers 10, 11, 12, and 13 with arms of the T-shaped lever 9.

23 represents springs acting between the elbow-levers 14 and the casing 8 to restore the levers and their plungers to their normal positions, with the plungers projecting above the casing upon the road-bed.

24 represents the tripper, journaled upon an axle 25 of the engine and provided with an anti-friction roller 26, a treadle 27, which projects through the floor 28 of the engine, and a spring 29, which holds the tripper raised and normally idle.

In operation, if the tripper 24 be pressed down while the engine on the main line approaches the switch-tongue from the left, the roller 26 will press upon plunger 10 and through the media of lever 14, connecting-rod 19, the T-shaped lever 9, and vertical shaft 7 act upon the tongue 6 to swing it from you, as seen in the drawings, and guide the engine upon the side track. The plunger 10 is located far enough in front of the switch to insure the setting of the switch-tongue before the engine reaches it. Now if it be desired to leave the switch open to the side track, the engineer permits the treadle 27 to be sprung up immediately after passing plunger 10; but if he desires to close the switch after the passage of his train onto the side track he holds the treadle 27 down until the roller 26 actuates the plunger 11 to close the switch. Plunger 11 is located far enough from the switch-tongue 6 to permit the train to pass the switch before the said plunger is reached.

In Fig. IV we have shown another tripper 30 in all respects like tripper 24, but located a little to one side thereof to coact with plungers 12 and 13 and operate them when the engineer wishes to keep his train on the main line, and it is operated thus: When approaching the switch, the engineer will press upon the treadle of tripper 30, which will act upon plunger 12 and close the siding-switch if it chances to be open, thus permitting the train to pass the switch on the main line, and if it

is desired to reopen the switch for the side track after the train has passed it a second pressure upon tripper 30 will act upon plunger 13 to open the switch.

5 As may be seen, each of the connecting-rods 19, 20, 21, and 22 is freely connected with the arm at one of its ends, thus being arranged to move the adjacent arm of the T-shaped lever but one way, and after so moving it the
10 connecting-rod and its plunger will both be returned to their normal position of rest by spring 23 without changing the set of the switch, thus permitting the switch to be operated either way at any time by hand or
15 other means. This we call a "free connection." The casing 8 not only serves as a support for the various parts, but also as a protection therefor against the interference of dirt or ice, snow, &c. The angular position
20 of the brace of the trippers 24 30 so locates the roller 26 that the forward movement of the engine exerts great force to press the plungers down to a given level, whereby the switch-tongue is actuated with great certainty.

25 The plungers and the shaft 7 are provided with collars 31 to insure the exclusion of dirt at the only openings into the casing 8.

Having thus fully described our invention, what we believe to be new, and desire to secure by Letters Patent, is the following:

30 1. The combination, in automatic railway-switches, of a switch-tongue secured to a vertical shaft which is journaled in a fixture upon the road-bed and provided with a T-shaped
35 lever, one or more vertically-movable trippers mounted upon an engine to hang near the track, one or more plungers located in the path of the said trippers and each upon an
40 elbow-lever pivoted to a fixture of the road-bed, and connecting-rods between the verti-

cal arms of the said levers and the arms of the said T-shaped lever, each connection being adapted to move the T-shaped lever but one way, substantially as described.

2. The combination, in automatic railway- 45 switches, of a switch-tongue fixed upon a vertical shaft which is journaled in a fixture upon the road-bed and provided with a T-shaped lever, plungers projecting into the path of a tripper upon an engine and mounted on elbow-levers which are pivoted to fixtures, the
50 said elbow-levers, and the arms of the T-shaped lever, the said connecting-rods having at one end of each a free connection with the adjacent lever, whereby the rod when
55 moved in one direction will communicate a positive motion to the T-shaped lever, but in the return motion it leaves the T-shaped lever, and a spring for producing said return movement, substantially as described. 60

3. The combination, in railway-switches, of a plunger fitted for vertical movement upon the road-bed, connections between the plunger and a switch-tongue, a tripper journaled at one end upon an axle of an engine and
65 provided with a forwardly-depending arm, and a friction-roller thereon in line to engage the said plunger, and further provided with an arm extending up through the engine-floor and having a treadle on it, and a spring for
70 elevating the tripper to keep the roller normally out of the line of engagement with the plunger, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

G. SEYMOUR MAXWELL.
JAMES CLARK, JR.

Witnesses:

GEO. H. WEBB,
JNO. M. RAMSAY.